

## 3

## Dikes, Berms and Swales



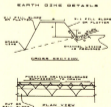
### DESCRIPTION/GOALS

Dikes and berms are ridges of soil used to direct or contain flows on construction sites. Swales or channels are often used in combination with dikes. These systems are used to divert sediment-laden water to a treatment device such as a sediment basin or sediment trap, or past sensitive areas such as highly erosive soils.

### TECHNIQUES

Earth dikes should be about two feet tall, and be hydroseeded for stabilization. The designer should ensure that dikes and the channels created have capacity for the ten-year storm event, and that channels are properly stabilized to prevent erosion. When the dike leads to a sediment trap or basin, the outlet should be stabilized.

Several methods are available to reduce erosion in swales or channels. Lining them with riprap or spreading mulch and seed increases the roughness in the channel, slowing runoff velocities. Stone check dams can also reduce erosion. These are piles of stone placed perpendicular to flow to slow runoff and trap sediment.



Source: New York Construction Erosion & Sediment Control Field Notebook  
USDA - Natural Resources Conservation Service

APPROXIMATE  
COST: \$5 to \$6/ft

#### EFFECTIVENESS

	Low	Med	High
Erosion/ Sediment Control			✓
Long-Term Pollutant Reduction	✓		
Stabilize/ Stream Protection		✓	

#### EASE OF APPLICATION

	Difficult	Average	Easy
Installation	✓		
Maintenance	✓		

#### LIMITATIONS

- Very small sites

#### **LIMITATIONS/CHALLENGES**

Where possible, swales and dikes are preferred over silt fences (See Fact Sheet 11). Unfortunately, space limitations often restrict their use. They are significantly wider than silt fences and, consequently, cannot fit into as tight an area. Furthermore, they are conveyance mechanisms rather than filtering devices, and generally must be combined with a sediment trap or basin. On very small construction sites, it may be difficult to locate a basin or trap in combination with a dike system.

#### **INNOVATIONS/IMPROVEMENTS**

An alternative to these traditional diversion methods is the use of movable, or continuous berms. Continuous berms are geotextile tubes filled with sand or dirt, used similarly to traditional berms. They are machine-spread and can be used repeatedly. They accomplish the same task as traditional berms or dikes, but are slightly more expensive.

**Swale with Check Dam**

